

Remarks

Claims 36-41, 57, and 64 are pending.

Claim 57 has been amended to address a typographical error identified by the Examiner. No new matter has been added.

Rejection of Claims under 35 U.S.C. § 102

Claim 57 stands rejected under 35 U.S.C. § 102(b) as being anticipated by Kihara et al., U.S. Patent No. 5,949,559 (Kihara). The applicants note for the record that because the present application claims the benefit of applications filed on February 27, 1998 and June 17, 1998, Kihara does not constitute a proper reference under 35 U.S.C. §102(b). However, Kihara appears to constitute a proper reference under 35 U.S.C. §102(e), and the applicants have responded on that basis. The applicants respectfully traverse this rejection.

Kihara neither teaches nor suggests a method including:

conditioning the object beam with the rendered image, the conditioning of the object beam including the step of *passing the object beam through a voxel-control lens, the voxel control lens being capable of varying the size of at least one voxel and being capable of making the rendered image as seen from the viewpoint of an elemental hologram appear at a greater apparent distance relative to the holographic recording material*;

as required by independent claim 57.

Regarding the claimed “. . . passing the object beam through a voxel-control lens . . . ,” the Examiner refers to Kihara’s 43, which is described by Kihara as follows:

. . . a cylindrical lens 43 for condensing the object beam transmitted through the one-dimensional diffuser panel 42 onto the hologram recording medium 30 . . . (column 5, lines 3-6)

Then, the light is condensed onto the hologram recording medium through the effect of the cylindrical lens 43. (Column 6, lines 23-24).

Thus, the applicants respectfully submit that Kihara’s lens 43 is not a voxel control lens, nor does Kihara teach or suggest that lens 43 is both (1) capable of varying the size of at least one voxel, and (2) capable of making the rendered image as seen from the viewpoint

of an elemental hologram appear at a greater apparent distance relative to the holographic recording material.

Moreover, regarding these properties, the Examiner goes on to state that the first is “inherent” and the second is a consequence of the use of Kihara’s lens 43 “in the same manner as that set forth in the instant invention.” Office Action of March 17, 2004, p. 3, ¶4. The applicants respectfully disagree. These properties are not inherent in Kihara’s lens 43. Moreover, the Examiner’s reliance on a purported inherent property of lens 43 carries with it an obligation as noted in MPEP § 2112:

“In relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art.” *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) (emphasis in original)

The applicants respectfully submit that the Examiner has provided no such evidence or rationale tending to show inherency.

Accordingly, the applicants respectfully submit that claim 57 is allowable over Kihara.

Rejection of Claims under 35 U.S.C. § 103

Claims 36-41 and 64 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kihara.

Kihara neither teaches nor suggests an apparatus for printing holographic stereograms including:

an object beam unit, including a removable band-limited diffuser, for displaying a rendered image and for conditioning the object beam with the rendered image to interfere with the reference beam at a chosen elemental hologram, *wherein the removable band-limited diffuser includes a deterministic phase pattern designed to diffuse light in at least one of a specific pattern and a specific direction, and wherein the removable band-limited diffuser is designed for a wavelength corresponding to a wavelength of the coherent beam;*

a removable masking plate located in the path of the reference beam and proximate to the holographic recording material, *wherein the removable band-limited diffuser and the removable masking plate form a matched set configured to allow exposure of a particular size hogel; and*

as required by independent claim 36.

Regarding the claimed “an object beam unit, including a removable band-limited diffuser . . . ,” the Examiner refers to Kihara’s diffuser panels 42 and 45, notes the “inherent” band-limited nature of Kihara’s diffusers, and merely asserts that Kihara’s diffusers include a deterministic phase pattern designed to diffuse light in at least one of a specific pattern and a specific direction. The applicants respectfully submit that Kihara’s diffusers: (1) are not “band-limited” diffusers; (2) do not include “a deterministic phase pattern designed to diffuse light in at least one of a specific pattern and a specific direction”; and (3) are not “designed for a wavelength corresponding to a wavelength of the coherent beam.”

In his Office Action of March 17, 2004, p. 5, ¶7, the Examiner states:

... said diffuser taught by Kihara et al. is inherently band-limited, inasmuch as said diffuser would not efficiently pass, for the sake of example, radiation in the infrared or ultraviolet bands . . .

There is nothing in Kihara or in anything else presented by the Examiner teaching or suggesting that Kihara’s diffusers are “band-limited” within the meaning of the term as known to those having ordinary skill in the art. The Examiner’s conclusion as to the meaning of the term “band-limited” renders the term meaningless in the claim and is contrary to the meaning of the term as presented in the applicants’ specification. Moreover, the Examiner’s reliance on a purported inherent property of Kihara’s diffusers carries with it an obligation as noted in MPEP § 2112:

“In relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art.” *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) (emphasis in original)

The applicants respectfully submit that the Examiner has provided no such evidence or rationale tending to show inherency.

Regarding the claim requirement that the band-limited diffuser include “a deterministic phase pattern designed to diffuse light in at least one of a specific pattern and a specific direction,” the Examiner merely refers to diffuser 42, but provides no

argument as to why diffuser 42 includes the claimed features. Office Action of March 17, 2004, p. 4, ¶4. The applicants respectfully submit that nothing in Kihara teaches or suggests this limitation.

Regarding the claim requirement that the band-limited diffuser is “designed for a wavelength corresponding to a wavelength of the coherent beam,” the Examiner provides no argument.

Regarding the claim requirement of a “removable masking plate located in the path of the reference beam . . . ,” the Examiner refers to Kihara’s mask 44. The applicants respectfully submit that Kihara teaches that mask 44 is located in the path of the object beam (see, e.g., **Figures 3A and 3B**) and not in the path of the reference beam. Moreover, regarding the claim limitation that “the removable band-limited diffuser and the removable masking plate form a matched set configured to allow exposure of a particular size hogel,” the Examiner presents no argument.

Accordingly, the applicants respectfully submit that claim 36 is allowable over Kihara. Claims 37, 38, and 64 depend from claim 36 and are allowable for at least this reason.

Kihara neither teaches nor suggests an apparatus for printing holographic stereograms including:

a voxel-control lens located in the path of the object beam and proximate to the holographic recording material, *the voxel control lens being capable of varying the size of at least one voxel and being capable of making the rendered image displayed by the object beam unit as seen from the viewpoint of an elemental hologram appear at a greater apparent distance relative to the holographic recording material; and*

as required by independent claim 39.

As noted above, the Examiner refers to Kihara’s 43, which is described by Kihara as follows:

... a cylindrical lens 43 for condensing the object beam transmitted through the one-dimensional diffuser panel 42 onto the hologram recording medium 30 . . . (column 5, lines 3-6)

Then, the light is condensed onto the hologram recording medium through the effect of the cylindrical lens 43. (Column 6, lines 23-24).

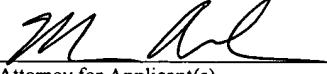
Thus, the applicants respectfully submit that Kihara's lens 43 is not a voxel control lens, nor does Kihara teach or suggest that lens 43 is both (1) capable of varying the size of at least one voxel, and (2) capable of making the rendered image as seen from the viewpoint of an elemental hologram appear at a greater apparent distance relative to the holographic recording material.

Also as noted above, the applicants respectfully submit that neither of these properties is inherent in Kihara's lens 43, and any reliance by the Examiner on a purported inherent property of lens 43 carries with it an obligation as noted in MPEP § 2112.

Accordingly, the applicants respectfully submit that claim 39 is allowable over Kihara. Claims 40 and 41 depend from claim 39 and are allowable for at least this reason.

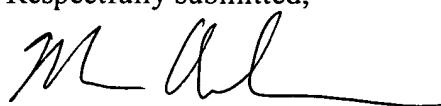
In view of the amendments and remarks set forth herein, the application is believed to be in condition for allowance and a notice to that effect is solicited. Nonetheless, should any issues remain that might be subject to resolution through a telephonic interview, the examiner is requested to telephone the undersigned.

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA, 22313-1450, on July 19, 2004.


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7/19/04
Date of Signature

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